The latest released version of LexBIG is version 2.3.0. which was released on 10/13/2008.

A patch was released for this version on 1/1/2009. Please go to LexBIG releases for the actual releases.

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What is LexBIG?

LexBIG is a project that applies LexGrid vision and technologies to requirements of the caBIG® community. The goal of the project is to build a vocabulary server accessed through a well-structured application programming interface (API) capable of accessing and distributing vocabularies as commodity resources. Primary objectives for the project include:

- Provide a robust and scalable open source implementation of EVS-compliant vocabulary services. The API specification is based on but not limited to fulfillment of the caCORE EVS API. The specification also accommodates changes and requirements based on prioritized needs of the caBIG? community.
- Provide a flexible implementation for vocabulary storage and persistence, allowing for alternative mechanisms without impacting client applications or end users. Initial development will focus on delivery of open source freely available solutions, though this does not preclude the ability to introduce commercial solutions (e.g. Oracle).
- Provide standard tooling for load and distribution of vocabulary content. This includes but is not limited to support of standardized representations such as UMLS Rich Release Format (RRF), the OWL web ontology language, and Open Biomedical Ontologies (OBO).

The LexBIG package represents a compressive set of software and services to load, publish, and access vocabulary. Cancer Centers can use the LexBIG package to install the NCI Thesaurus and NCI Metathesaurus and query content via a rich application programming interface (API). LexBIG services can also be incorporated into numerous applications wherever vocabulary content is needed.

NCI EVS is the lead adopter site for the open source public domain terminology server LexBIG, which is being developed by the Mayo Clinic as part of the caBIG program. Effective with the release of EVS/caCORE 4.0, LexBIG provides the base terminology server infrastructure for EVS. The current EVS/caCORE release is version 4.1 and it relies on LexBIG version 2.2.0.

LexBIG is based on the LexGrid Data Model, Mayo's standard data model for storage of controlled vocabularies and ontologies. The LexGrid Model defines how vocabularies should be formatted and

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represented programmatically, and is intended to be flexible enough to accurately represent a wide variety of vocabularies and other lexically-based resources. The model also defines several different server storage mechanisms (for example, relational database, LDAP) and a XML format. This model provides the core representation for all data managed and retrieved through the LexBIG system, and is rich enough to represent vocabularies provided in numerous source formats including:

- Open Biomedical Ontologies (OBO)
- Web Ontology Language (OWL)
- Unified Medical Language System (UMLS) Rich Release Format (RRF)

This common model is a critical component of the LexBIG project and EVS/caCORE 4.x. Once disparate vocabulary information can be represented in a standardized model, it becomes possible to build common repositories to store vocabulary content and to build common programming interfaces and tools to access and manipulate that content.

LexBIG has three major components:

- 1. Service Management tools to load, index, and manage vocabulary content for the vocabulary server
- 2. An API providing Java interfaces to various functions including lexical queries, graph representation and traversal, and NCI change event history
- 3. A Graphical User Interface providing access to service management and restricted API functions

The LexBIG API enables querying information stored in the LexGrid model. NCI and caBIG are not alone in adopting LexGrid. As essentially identical API called LexBio has been developed for the National Center for Biomedical Ontologies (NCBO). NCI EVS has adopted a variant of NCBO's BioPortal as the terminology browser for EVS/caCORE 4.x, NCI BioPortal.

Operations Systems for LexBIG

While you shouldn't need a separate installer, you will need to have the correct Java JDK installed for the system you are on. Some limitations will automatically apply. The GUI installer and a GUI browser may have problems with operating systems other than Windows or Linux. If the browser has options, note that we do have a fair amount of command line demonstration code that you might exercise in the package's Admin and Example folders.

Note that environments other than Windows or Linux are not tested or formally supported.

Installation of Current Release of LexBIG

The latest released version of LexBIG is version 2.3.0. which was released on 10/13/2008. A patch was released for this version on 1/1/2009.

Please go to the Gforge site for the <u>latest installation package for LexBIG</u>

What is LexBIG?

LexBIG Silver Level adaptation based on LexGrid 2008

LexBIG Silver Level 2008

LexBIG Information Models

The LexBIG Extensions in XML Schema

Version 2008/01 of Model and Schema (as of 8/09/2008)

- Collections.xsd
- NCIHistory.xsd
- changelog.txt
- OWLLoadPreferences.xsd
- Core.xsd
- enums.xsd
- <u>HL7LoadPreferences.xsd</u>
- SemNetLoadPreferences.xsd
- caGrid.xsd
- <u>TerminologyServiceMetadata.xsd</u>
- LoadPrefernces.xsd
- <u>UMLSLoadPreferences.xsd</u>
- <u>InterfaceElements.xsd</u>
- CodingSchemeManifest.xsd
- OBOLoadPreferences.xsd
- XMLLoadPreferences.xsd

Zip File of all files for 2008 Model and Schema

Version 2006/01 of Model and Schema (as of 2/22/2007)

- Collections.xsd
- InterfaceElements.xsd
- <u>TerminologyServiceMetadata.xsd</u>
- Core.xsd
- NCIHistory.xsd
- changelog.txt

Zip File of all files for 2006 Model and Schema

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Loading Vocabularies into LexBIG

Content can be loaded using either the administrative functions provided by the LexBIG Graphical User Interface (GUI) or counterpart command-line scripts. Refer to the Installation and Administration Guide, which can be referenced in the /doc folder of the installed materials or is available as a document on this wiki page.

Interacting with LexBIG

LexBIG services are delivered as middleware.

If the goal is to interact through a client program, refer to the Programmer Guide which can be found in the /doc folder of the installed materials.

If the goal is to interact through a graphical user interface, options are available. The LexBIG GUI, as described in the programmer and administration guides, provides a basic API-centric way to query and visualize content. It is a development time tool written for audiences that are both technical and somewhat familiar with the LexBIG API.

If the goal is to provide a general purpose end-user interface, other options are available. One browser-based front end to LexBIG is BioPortal. The BioPortal code base originates as part of work done by the National Center for Biomedical Ontology (NCBO), and provides the basis for the NCI BioPortal. The NCI BioPortal is available from NCI at <u>BioPortal</u>.

LexBIG Frequently Asked Questions

Documents

- LexBIG 2.3.0 Administrator Guide
- LexBIG 2.3.0 Read Me Guide
- LexBIG 2.3.0 Programmer Guide